Performance Improvement in Rural Trauma Care

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Acknowledgments

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- Deb Horsman, Terri Elsbernd, Carol Immermann, John Osborn and Paul Drucker from Mayo Trauma Center
- Tracy Cotner-Pouncy, Eric Epley and Ronny Stewart
- TOPIC creators
The Trauma and Injury Problem in the United States

- ~200,000 deaths/year due to injury
- Highest cost in years of life lost of any disease
- #1 cause of death ages 1-44
- Pediatric impact = more deaths than all other causes of childhood death combined
- 9 hospitalizations for every death
- 9 million falls, 3 million car crashes
- 30,000 gunshot deaths; 20,000 suicides and 10,000 homicides/’accidents’
Level I/II Trauma Center Access

- 190 Level I, 255 Level II and 258 Level III
- 69% US population within 45 minutes and 82% within 60 minutes
- 46.7 million US citizens outside 60 minute window of access mostly in rural areas
- Texas: 63% and 74% within 45 and 60 min
  - Add Level III access: 81% and 93% within 45 and 60 minute window
  - Helicopters add 26-32% more access

JAMA 2005; 293: 2626-2633
Rural vs Urban Time to Care

- Washington State, 1986, MVC deaths
- Pre-hospital time rural 2x urban
- First physician contact rural 6x urban
- Death rate rural 3x urban

Pre-hosp & Disaster Med 1995; 10: 161-166
San Diego Time to Trauma Death

- 10 year study, 12,320 trauma patients and 900 deaths (7.3%)
- 70% of deaths occurred in first 24 hours
- 43% of all deaths caused by CNS injury
- After 72 hours, organ failure and PE were most common causes of death
- Preventable deaths were only 1%

JACS 186(5): 528-33, 1998 May
Survival in Rural Hospital Trauma Care

- 642 patients each from Washington and Oregon compared
- 63% and 70% promptly transferred to Level I center without and with trauma system
- No difference in death rate
  - 13% for CNS
  - 4% liver/spleen
  - 28% combined injury

J Trauma 2002; 52: 1019-1029
Rural Hospital Trauma Care

- 2-year study from Missouri
- 2,910 of 24,392 (11.9%) trauma patients admitted to rural Level III facilities
- Significant difference in death rate: 2% vs 4% (Level I and II centers)
- Significant difference in acuity
  - Only 1.5% in shock at admission
  - Only 2% with GCS < 9
  - Only 1% needed torso operation

J Trauma 2007; 62: 498-503
Rural MVC and Mortality

- Alabama 20-month study 65% rural MVC compared to 35% urban MVC
- >Mortality (4.2% vs 2.1%)
- >Dead at scene (70.5% vs 57%)
- >Response time (13.9 vs 6.8 minutes)
- >Distance (10 vs 3 miles)

J Trauma 2006; 61: 404-409
Geographic Variations in MVC Mortality

- 2-year study, 48 contiguous states
- MVC mortality highest in counties of low population density
- MVC mortality inversely proportional to income per capita
- Highest vs lowest MVC mortality/pop
  - Esmeralda County, Nevada 558/100,000
  - Manhattan NY 2.5/100,000

NEJM 1987; 316: 1384-1387
Drug and Alcohol Use in Rural MVC Mortality

- 2-year study in West Virginia, all MVC fatalities via Fatality Analysis Reporting System (FARS) to National Highway Traffic Safety Administration (NHTSA)
- Prevalence of drug use = 25.8%
- Prevalence of alcohol use = 27.7%
- 47.3% had drugs or alcohol in their system
- 11.1% had both; 9% of drivers ≥ 2 drugs

JAMA 2007; 297: 873-874
Underage Alcohol Use
Rural vs non-Rural

- 2002 study by Office of Applied Studies of Dept of Health and Human Services
- 10% of persons age 12-20 lived in rural area
- Underage drinking in 12-17 year olds greater in rural than non-rural: binge drinking 4.1% vs 1.6%
  - Less perceived risk
  - Less disapproval
  - Highest in Hispanic rural population (30.4% vs 16.3%)

www.oas.samhsa.gov/2k4/ruralYouthAlc
Delayed Diagnosis in Rural Trauma Center

- 2 year study in Illinois; 1876 patients
- 68 delayed diagnoses in 56 patients (3%)
  - Majority (63%) ortho non-spine
  - 1/7 missed spinal fx’s resulted in paralysis
  - 11 H/N, 3 arterial, 3 PTX and 2 sm bowel
  - High incidence altered LOC; 20% on 1° x-rays
- 34% required surgical care
- 1 death

Surgery 1996; 120: 774-778
Preventable Trauma Deaths in Rural Michigan

- 1-year study, 155 trauma deaths in 24 rural counties (12,300 sq mi and 484,000 pop.)
- Preventable/potentially preventable death rate 12.9%
- 17.4% with inappropriate care; 55% of preventable mortality due to hemorrhage

J Trauma 1996; 41: 83-90
Preventable Death in Rural Trauma

• 1-year study in Montana incl 324 trauma deaths
• 9% of all deaths were due to trauma
  • 42% due to CNS injury, 20% hemorrhage
  • 13% preventable and 32% of care inappropriate
• Hospital deaths 27% preventable and 68% with inappropriate care (ATLS standards)

J Trauma 1995; 39: 955-962
Stabilization at Level III and Transfer to Level I

- 50 patients over 4 years in NY State
- RTS $\leq 11$
- 7 died in rural ED, 43 stabilized/transferred
- Dead patients: RTS 4.4 and ISS 50 (5 predicted)
- Transferred patients: RTS 5.9 and ISS 18;
  - 5 died (8 predicted deaths)
  - 1 hour 43 minutes avg ED LOS before transfer

Stabilizing Care at Rural Trauma Centers in Vermont

- 3 ½ year study, 2,674 trauma patients
- 39% transferred in from rural centers
- Pre-Level I time 254 minutes avg
- >ISS 11.1 vs 7.9; mortality same
- Higher ISS and age contributed to death, transfer did not

J Trauma 1999; 46: 328-333
Follow-on Study of Rural Trauma Care in Vermont

- 5-year study, 16,354 trauma patients and 370 deaths (2.2%)
- 36% admitted to Trauma Center
  - Patients more injured
  - Higher mortality (3.1% vs 1.8%)
- 64% admitted to Community Hospitals
  - Worst injured cohort survival worse than in Trauma Center (16% vs 38%)

J Trauma 2001; 50: 409-414
Oregon Trauma System Development

- 6-year study (3 years before and after)
- 940 patients analyzed from rural areas
- Nearly 2x as many patients transferred
- Post-system transfer time increased from 153 to 208 minutes
- Mortality rates increased from 6.7% to 8.3%
- Urban trauma deaths and transfers improved in same time period

Rural New York Trauma System Development Impact

- 4-year study of 5,469 blunt trauma patients
- Followed trauma system implementation
- Increase in direct admit to trauma centers (49% vs 55%) and stable inter-facility transfer (15%)
- No significant change in overall mortality
  - Patients more badly injured
  - Risk-adjusted mortality much better

J Trauma 2000; 49: 63-70
Abdominal Surgery at Rural Trauma Center Prior to Transfer

• 3 centers, 3 states, 6 years and 56 patients
• Age 32, ISS 25, 82% blunt, transfer distance/time 141 miles and 12.4 hours and 82% overall survival
• 46% transferred due to abdominal injury
  • 14 underwent damage control (25%)
  • 65% survival vs 97% survival if Tx’d for care of extra-abdominal injury
• ½ of deaths < 3 hours & all due to abdominal injury

J Trauma 2003; 54: 823-828
The Differences in Rural and Urban Trauma Mortality

- Rural resident 50% more likely to die from trauma
- Rural MVC rate 29.5/100,000 vs 16.3
- Suicide 1.2x; homicide 1.2x and falls 1.5x
- 1/3 as many physicians in rural areas

J Trauma 1999; 47: 802-822
The Trauma Problem in Minnesota

- 2400 deaths/year
- Highest cost in years of life lost of any disease
- #1 cause of death ages 1-44
- Pediatric impact = more deaths than all other causes of death combined
- 9 hospitalizations for every death
- Staggering costs
  - Motor Vehicle Crash deaths alone = > $568 million/year
Rural Trauma Center Development

- Need outlined at the beginning of this lecture
- Specific needs of the community to be taken into account
- Critical access hospitals cut down on time to care
- Centers that go through designation raise the level of care
- Commitment of the hospital leadership
Rural Trauma Center Development

- Must have administrative champion
- Must have a physician and nurse champion
- Should coordinate effort with EMS and dispatch
- Read the State designation document, then
- Should ask for help from the State or from friends (consultative visit): think referring center, State trauma director, State Committee on Trauma
Rural Trauma Center Development

- All hospital staff involved must buy in
  - Lab
  - ED
  - Radiology
  - Physicians
  - Surgeons?
  - Nursing
Rural Trauma Center Development

• Training requirements will increase
• Must secure appropriate line of funding to support development
• Must secure portion of FTE to run the trauma center
• Must be part of the hospital QA and peer review process
Creating a Trauma Performance Improvement Program

- Consensus on need
- Focus on Improvement and Outcome
- Non Punitive Environment
- Data is helpful in many initiatives
- Participation by Trauma Team
- Integration into Hospital Program
Authority for the PI Program

- Trauma Program Director empowered
- Reporting structure within Hospital hierarchy
- Stick to the written PI plan

- Trauma Panel Requirement
  - General Surgery?
  - Emergency Medicine
  - Orthopedic Surgery?
  - Anesthesia
  - Radiology
Leadership in Trauma PI

- The hospital leadership must set the tone
  - Expectation for staff participation
  - Endorse trauma standards/criteria
  - Encourage continuous improvement in the organization
  - Support the ‘blameless’ culture
How to get the “Right” People to the Table: “Herding Cats in a Trauma Center

Initially Presented by
Glen Tinkoff MD, FACS
Chair, PIPS ACS-COT Committee
Assoc. Vice Chair of Surgery
Christiana Care Health System
Newark, De

Owatonna, Mn
09/16/2010
Medical Peer Review

Process whereby physicians and other “credentialed providers” evaluate the quality of work performed by their colleagues
Medical Peer Review

• Rationale
  • Efficient
  • Fosters standardization
  • Self regulatory
Medical Peer Review

- Utility
  - “Polices the profession”
- Credentialing
- Performance Improvement
  - Provider
  - Program
  - Institution
  - System
Medical Peer Review

Negatives

- “To Err is Human”
- Catalogs and quantifies blame
- Promote defensiveness
- Punishes/conceals failures
- Discourages new ideas
- In small hospitals, who does the peer review?
Trauma Program Peer Review

- Administrative accountability
  - TMD must be empowered to address multidisciplinary issues
  - TMD must have the authority to
    - determine the qualifications of trauma panel members
    - recommend changes to trauma panel based on performance review
Trauma Program Peer Review

• Evidence or consensus based analysis
• Regular intervals
• “Expert” review
• Define “Peer Group”
• Produce effective corrective strategies
• Used in credentialing/privileges
• Integrate into hospital-wide PI
• Provide protection from discovery
Trauma Program Peer Review

- **Trauma Peer Review Committee**
  - Review selected mortalities, complications, sentinel events, etc.
  - Identify process issues and suggest corrective actions
  - All mortalities must be reviewed
  - In circumstances in which attendance is not mandated, dissemination of information to the responsible provider must be ensured
Trauma Program Peer Review

- Corrective Action
  - Guideline/protocol development
  - Education
  - Enhanced resources
  - Process improvement team
  - Counseling
  - Change in privileges
  - External review
Paradigm Shift

Old
• We don’t have time
• Quality costs money
• Use intuition and anecdote
• Defects come from defective people

New
• We don’t have time not to
• Quality saves money
• Collect and analyze data
• Defects come from defective processes
Paradigm Shift

**From**
- Who did it
- Punishment
- Errors are rare
- MD’s don’t participate
- Adds more complexity
- Calculate error rates
- Zero errors

**TO**
- What allowed it?
- Thank you!
- Errors are everywhere
- Everyone is involved
- Simplify/ standardize
- No thresholds
- Zero harm
Interdisciplinary Relationships

- Professional
- Collegial
- Collaborative
- Apathetic
- Obstructionist
- Contentious
Level III and IV Centers
PI Guidance

- State of Minnesota outlines PI program minimum requirements
- **Morbidity and Mortality Review Committee**
  - The trauma program PI requirements include the establishment of a morbidity and mortality review committee, which is analogous to a physician peer review committee
  - Its purpose is to provide for review of physician performance
  - Membership on this committee should be physicians from several disciplines and may include non-physicians (such as nurse practitioners [NPs] or physician assistants [PAs]), at the discretion of the trauma program and hospital administration
  - The format and activities of this committee are left largely to the discretion of the hospital
  - Physicians may not review their own care
The Morbidity And Mortality Review Committee

- Should meet regularly and review the physician care from patient charts, focusing on cases wherein problems, shortcomings, weaknesses or concerns have been identified by the trauma program PI team.
- If the committee identifies provider-related problems, they should recommend a corrective action plan; if they identify system-related concerns they should forward their findings to the trauma PI team.
- This committee is also responsible to review all trauma deaths in the facility and classify them as non-preventable, potentially preventable or preventable.
Bottom Line

• Your hospital applied for and was designated as a trauma center
• All key components of trauma center designation must be met
• This was part of the agreement; one cannot get the benefits of being a trauma center without complying with the minimum requirements
Support from the Administration

- The administration and leadership of the hospital must set this as a priority
- It is part of the professional culture in the institution
<table>
<thead>
<tr>
<th>Program Component</th>
<th>Level III</th>
<th>Level IV</th>
<th>Criteria Description</th>
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</thead>
<tbody>
<tr>
<td>Performance Improvement Program</td>
<td>NA</td>
<td>E</td>
<td>The trauma program medical advisor or designee (who must meet the training standards of the System) must review trauma cases attended by an NP or PA within the 72 hours following the resuscitation.</td>
</tr>
</tbody>
</table>
| Morbidity And Mortality Review     | E         | E        | A mechanism shall be established by which all physicians caring for trauma patients are involved in confidential peer review of the care in accordance with facility and medical staff policy. These physicians will regularly review and discuss:  
- Results of trauma peer review activities.  
- Problematic cases including complications.  
- All trauma deaths, identifying each death as non-preventable, possibly preventable, or preventable.*  
The peer review process and minutes of this committee should be confidential and in accordance with facility and medical staff policy. Utilization of trauma registry data will facilitate the entire PI and peer review process.  
*The STAC has adopted standardized definitions based on industry standards. See the Trauma Hospital Resource Manual. |
| Multidisciplinary Trauma Review    | E         | D        | Must have an established mechanism by which all those involved in caring for trauma patients are involved in a review of the care. In addition to attendance by emergency, surgery, anesthesia, radiology and ICU staff; administration, nursing, radiology, lab, anesthesia and other ancillary personnel might attend. |
|                                    |           |          | Collect trauma data using either the state Web-based system or an in-house program and                                                                 |
|                                    |           |          |                                                                                                                                                     |
Be Smart

• Holding a separate meeting to review issues and do case/peer review is the ideal but often not practical

• Hold meetings within meetings
  • When the providers are already meeting at a staff meeting
  • Go to them
  • Have food
  • Make it worthwhile
  • Meet for only as long as it takes (15 minute meetings are possible)
Summary

- JCAHO/ ACSCOT – “The Stick”
- “Policing” the Profession/ Improving our performance
- Medical Staff/ Trauma Program responsibility
- Confidential and Immunity
- Anticipate to pay $$$ for commitment (“The Carrot”)
Regionalization of Trauma Care

- Distinct catchment area
- Natural referral patterns
- Urban vs Rural injury patterns/mortality
- Differing needs/resources/challenges
- Common goals
Comparative Demographics

- Minnesota
  - 86,943 square miles
  - 5,344,861 population (61/sq mi)
  - 90-99 trauma deaths & rate (/100k): 20,756/45.41

- Metro:
  - 6,364 square miles
  - 2,551,375 population (400/sq mi)
  - Trauma deaths & rate over 10 years (/100k): 10,110/44.52

- Out state:
  - 80,579 square miles
  - Population: 2,224,133 (27.6/sq mi)
  - Trauma deaths & rate over 10 years (/100k): 10,626/48.05
Metro vs Out state 90-99 Stats

- Southeast and Southcentral Minnesota
  - 11,902 square miles
  - 678,536 population (57/sq mi)
  - Stay tuned for the mortality….
MINNESOTA'S 15 DEADLIEST COUNTIES FOR IMPAIRED DRIVING

1. Hennepin
2. Ramsey
3. Anoka
4. Dakota
5. St. Louis
6. Stearns
7. Wright
8. Crow Wing
9. Washington
10. Sherburne
11. Rice
12. Blue Earth
13. Beltrami
14. Cass
15. Olmsted

15 Counties’ Facts, 2004-2006
74,485 DWI arrests
272 alcohol-related traffic deaths
762 serious injuries
$350 million economic impact of alcohol-related crashes

NightCAP (nighttime concentrated alcohol patrol) targets the state’s 15 deadliest counties to arrest impaired drivers and to prevent alcohol-related traffic deaths and injuries. Enhanced patrols combine state, county and city law enforcement resources to saturate the deadliest traffic corridors.

Driving Minnesota Toward Zero Deaths.
Fatal and Serious Motorcycle Injuries in Southeast Minnesota
January 1, 2004 - December 31, 2006

- Fatalities: 22
- Serious Injuries: 89

Crashes by Day of Week and Time of Day

Map provided by the Mn/DOT Office of Traffic, Security, and Operations - March 2007
<table>
<thead>
<tr>
<th>County</th>
<th>2007</th>
<th>2008</th>
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<tr>
<td>Goodhue</td>
<td>12</td>
<td>4</td>
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<tr>
<td>Wabasha</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Dodge</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Olmsted</td>
<td>14</td>
<td>7</td>
</tr>
<tr>
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<td>10</td>
</tr>
<tr>
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<td>4</td>
</tr>
<tr>
<td>Fillmore</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>Houston</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

Source: Dept. of Public Safety

Rick Dahl, rdahl@postbulletin.com
Population = 678,536 inhabitants
Land area = 11,902 square miles

Trauma Death Rate per 100k population 90-99

>50/100k =
>MN Avg =
<MN Avg =

15 Deadliest Counties for Impaired Driving =

- Dodge
- Fillmore
- Freeborn
- Goodhue
- Houston
- Mower
- Olmsted
- Wabasha
- Winona
- Blue Earth
- Brown
- Faribault
- Houston
- Nicollet
- Sibley
- Steele
- Waseca
- Watonwan
- Martin
- Le Sueur
- Rice
- Fillmore
- Houston
MN Southern Tier Trauma Facilities Designation Status

- Regional hospital trauma center designation
  - Southeast counties = 3/12 designated
  - Southcentral = 3/12 designated

- Only 25% of available facilities designated!!!
  - How to track time to transfer?
  - How to institute regional trauma triage protocols?
  - How to effect Regional Performance Improvement?
Regional Trauma System Development

• Why start now?
  • Statewide system development mandate
    • Legislation in 2005
  • American College of Surgeons state system review 2007
    • Shortfalls noted: “Establish clear geographical catchment districts for designated trauma center, based upon patient needs and resource optimization”

• To save lives
  • # of Trauma deaths, years of life lost and societal costs/impact
Someone has to Take the Lead

• Regional resource center? State?
  • Hold stakeholder meetings
  • Get out to the referring centers and walk a mile in their shoes
  • Hear their concerns, complaints, grievances
  • Listen to the problems they have
  • Keep an open mind and leave both your ego and your defensiveness at home
  • Show them the stats and get agreement on the problems
“You Had Me At Hello”

- Most cannot believe the Level I/II center knows how to get to their hospital
- It’s not about us or about you but about “all y’all” and the citizens in our communities
- Have lunch in the cafeteria
- Wear a polo shirt and khakis
- Don’t talk, listen
- Know the facts: Mom, baseball, the flag and apple pie are still All American out here
Regional Trauma Advisory Committee Role

- Organize and operationalize trauma care within unique regions
  - Prevention through Rehab/Outcome
  - Triage and bypass criteria
  - Treatment algorithms
  - Performance Improvement along the continuum
  - Funding
  - Resource allocation/utilization
  - Plan for the future
The Major Problems

- Lack of a coordinated system
  - Pre-, In- and Post-trauma center care issues
- Lack of designated facilities
- Lack of agreed-upon triage criteria
- Dependency upon un-mandated system development and altruism alone
- Lack of system development funding
What Should We Expect the RTAC to do?

- Bring stakeholders together for the common cause of improving Regional trauma care
- Advise the State Trauma Advisory Committee of problems in the region
- Devise, adopt, implement and monitor Region-specific solutions where possible
- Identify obstacles to successful implementation and devise/promote solutions
- Advise STAC on Region-specific modifications to STAC initiatives for optimal success
How would the RTAC do That?

- Collaborate
  - Meet
  - Value each other
  - Develop plans
  - Share resources
  - Encourage participation
  - Resolve conflicts
  - ↓ duplicate effort
  - Obtain grants
  - Advocate

- Communicate and Educate
  - Triage protocols
  - Train
  - Benchmark outcomes
  - Injury prevention
  - Performance improvement
  - Committees and open forums
  - Advocate
Regional System Development

- Be inclusive
- Don’t be afraid to let others be in charge
- Did I mention be inclusive?
  - Go after the ‘competition’ first; if you don’t get them on board, you will have a tough time
- Set a few goals, don’t get lost in either the lofty aims nor the details (miss the forest for the trees)
- Baseball analogy: everyone plays by the rules
Partial Categorical List of Trauma Stakeholders

Suggestions for Possible Representation

- Level I Trauma Hospitals
- Level II Trauma Hospitals
- Level III
- Level IV
- EMS Regional Program
- EMS directors, providers, medical directors, etc.
- Aero-medical services
- Prevention specialists
- Rehabilitation specialists
- Disaster planning region representatives
- Elected officials
- Public Health
- Dispatchers
- Other community groups
- Consumers

MN Statewide Trauma System, Dec 2008
Process for Development

- Establish core committee membership
  - Voting for recommendations to STAC
- Have open forum regular meetings with broad membership
  - Sub-committees for each critical area
- Establish Regional Registry
- Create STAC report card
- Assign RTAC rep to STAC
Suggested Southern MN RTAC Membership

- Level 1 or 2:
- Level 3:
- Level 4:
- EMS regional director
- Aero medical
- EMS medical director
- Injury prevention
- Rehabilitation specialist
- Pediatric specialist
- Public health/Disaster planning specialist
- Elected official
- Trauma medical director
- ED MD/NM
- Dispatcher
- Hospital Administrator
Proposed Subcommittees

- EMS Medical Director
- Education
- Pediatric
- Performance Improvement
- Prehospital providers
  - Aero Medical
  - ALS/Critical care
  - BLS
  - First responders
- Prevention
- Public Health/Diaster
- Registry
- Rehabilitation
- Trauma Medical Director
- Trauma Program Managers/Coordinator
- Dispatch/Communication
What Do We Need to Do?

• Complete application requirements
  • Agree on RTAC formation and boundaries
  • Propose voting membership
  • Complete letters of support
  • Identify Coordinator
  • Identify lead agency
Specific Initiatives

- Lower Motorcycle Crash Deaths
  - Investigate recent crashes
  - Develop mitigation strategy
    - Education
    - Law enforcement
    - Design
    - Safety
Specific Initiatives con’t

• Lower EtOH-related Crash Deaths
  • Investigate recent crashes
  • Develop mitigation strategy
    • Education
    • Law enforcement
    • Design
    • Safety
Specific Initiatives con’t

• Other issue identification (falls, etc)
  • Investigate recent data
  • Develop mitigation strategy
    • Education
    • Prevention
    • Implementation
    • Monitor
Education Activities and Sharing Resources

• Provider Education
  • PHTLS
  • TNCC
  • ATLS
  • RTTDC

• Center/System Support Staff
  • Registry/Coding Courses
  • TOPIC
  • Rural and Level III and IV specific PI training
Resources and Communication

- Feedback on referrals in near-real time
- Joint conferences
- Data collection
  - Multi-institutional
  - Multi-disciplinary
  - Pre-hospital through post-discharge
- Outcome surveillance and PI
  - Monitor success of interventions
  - Detect /Respond to unnoticed trends
Advocacy

- Identify system development shortfalls
  - Devise region specific solutions
  - Advocate with local/regional officials
  - Educate public on the issues
- Assist STAC in legislative relief initiatives
  - Propose legislative initiatives
  - Advocate with elected officials
  - Educate public
CONTINUOUS SYSTEM PI

Route from Injury to Definitive Care

Incident

EMS 30-60 minutes

Ground Transfer 30-60 minutes

Level III or IV Trauma Center 30-60 minutes

Definitive Care Level III or I Trauma Center

Resuscitation and Surgical Capability

Regional PI
State PI
Regional and State Data

Trauma Center PI

Auto Launch 30-60 minutes
SMRTAC Level III and IV Regional PI Initiative

- Developed 5-part seminar
  - Each is one day long
  - Each focuses on the basics of PI
  - Each builds on the previous course
  - Each has 50% lecture and 50% practical
  - Each is designed to bring PI team together at the table and learn together
- Only course specifically designed to meet the needs of Level III and IV trauma centers (which also happen to be in rural locations)
4 Regional Practice Management Guidelines Approved at SMRTAC December 2011 for use in Level III and IV centers
Expected Outcomes From Systematic Regional Trauma PI

- Decrease in preventable deaths
  - 9% decrease in Motor vehicle crash deaths
  - Increase survival overall 15-20%
- Increase in quality of life of injured
- Decrease years of life lost
- Decrease cost of trauma care overall
Progress

• Comparing the 2 years before to the 2 years after RTAC ($p \leq 0.05^*$)
  • 100% of hospitals designated*
  • Number of referrals to Level I increased*
  • Injury severity (ISS) of those transferred increased*
  • Mortality of those transferred unchanged
  • 2 hours less from time of injury to arrival at definitive care*
More Progress

- Data user sharing agreement in place
- Quarterly report card for all centers from Level I
- Multiple site visits, PI conference attendance, surgeons taking call, etc
- New PMG’s developed because of bad outcomes seen across continuum of care
- Decub rate going down at Level I center thanks to regional PMG on backboards
The Future

• Southern Minnesota Regional Trauma Foundation (SMRTF) has been incorporated
• The message to citizens in the SMRTAC/SMRTF catchment area is that trauma and injury
  • Is related to unnecessary risk-taking
  • Is almost always preventable
  • Results in unnecessary lives lost and unnecessary cost (lost wages, taxes, increased medical cost, etc)
SMRTF Vision and Goals

• Community leaders have influence over their constituency, employees, colleagues, friends, family and elected officials
• We need community leader involvement to change the ‘injury-culture’ in our region
• By changing culture, we can save lives
• Investing in that kind of future—like the vision from 30 years ago where no one smokes in public places and all children ride in car seats—is within a generation of being reality
Thank You!

Questions?